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Practical Bee-Culture.

RESERVE QUEENS.

Almost every bee-keeper knows from experience how vexatious a matter it is when colonies, old or young, become queenless, and how troublesome and difficult a task it ofttimes is to re-queen them. Yet, theoretically, it would seem that the occurrence should cause no trouble, nor give us any uneasiness. "Give the suffering colony a sealed queen cell," we are taught, "or insert a piece of suitable brood-comb, and it will soon provide itself with a queen again." The doctrine is all right; but, alas, in practice, the work of "reconstruction" does not always run on just so smoothly.

Let us take a cursory view of the cases in which queenlessness occurs.

First. A colony becomes queenless, from no fault or act of its owner, at a time when neither queen cells nor brood from which a queen might be reared are to be found, or when no drones exist to fertilize the young queen when mature.

Second. Queenlessness occurs, whether by the owner's action or interference or not, at a time when brood abounds and drones are plentiful enough. A natural swarm may issue and lose its queen; or we multiply by artificial methods, division or transposition, and thereby produce queenlessness in at least *one* of the colonies operated on; or we remove the queen of a colony while pasturage is abundant, to cause an accumulation of stores without interference from brood, and desire when re-queening it to substitute a young queen for the old one; or, finally, queens are lost on their wedding flight, or from various other obvious or supposable causes.

In the first case above stated, re-queening by means of a queen cell or brood comb is either quite impossible or so uncertain that the best practitioners advise against attempting it—deeming it far better to break up the unfortunate colony at once.

This case occurs not merely in the spring or fall, but not unfrequently in the height of summer; for when a queen is lost on her wedding flight there is usually no more brood in her hive from which a successor could be reared. In the remaining cases, indeed, re-queening by means of queen cells or brood, is not only a possible, but the natural process, (even if it be effected with the aid of the bee-keeper); though most apiarians have often found, from sad experience, that after much anxiety and delay, the result is a failure.

Even when all things concur to secure a favorable issue, a month and more may pass before a queen raised from brood will begin to lay, and another month before the young bees produced from her eggs will become active workers. Meanwhile the season of pasturage is passing away, and when the new generation is ready to work there is nothing for them to gather. This is the reason why, in districts having spring or summer pasturage only, old stocks that have swarmed late, and late second swarms, usually fail to secure sufficient stores for winter, even if they do not happen to lose their queens, and become the prey of swarms.

But matters do not always move on so regularly and systematically, as theory teaches or leads us to expect. Old stocks that have swarmed, and artificial colonies supplied with brood, sometimes fail to start queen cells; or if they do, and succeed in rearing them, the young queens not unfrequently are lost on their wedding flight. In such case, the earliest and most important three or four weeks of their brief allotted season, are already lost; the work has to be begun anew, and *possibly* we may have the gratification at the end of ten or twelve weeks, to see young workers returning to their hive laden w th pollen. Much precious time has been fruitlessly wasted; many fine combs of brood have been unprofitably sacrificed; thousands of workers have been hatched merely to become mere unproductive laborers; and the end of the whole is that a feeble colony has been laboriously built up simply to be united in the fall with some other one equally feeble, in the hope of thus saving them from destruction otherwise obviously inevitable.

These are the experiences which have given many a bee-keeper a dislike for every kind of multiplication, whether by natural or artificial

swarming, dreading the risks to be in incurred and the delay that seems unavoidable.

Nevertheless multiplication is absolutely necessary if an apiary is to be established, and a very easy and sure process has been suggested, whereby all the difficulties referred to and the objections urged may be obviated.

I allude to the use of reserve queens.

This is a topic that has occasionally been adverted to, or made the subject of incidental remark; but it is one so vitally important to successful bee-culture, that we shall readily be excused for now undertaking to discuss it more minutely and in detail.

Without further preface, I assume the position that *every provident bee-keeper should adopt measures to keep a constant supply of fertile queens in reserve, through the entire year.*

Then let queenlessness occur, designedly or undesignedly, and at whatsoever season it may, a thorough radical cure of the colony is ever at command, by the prompt introduction of a reserve queen, with the usual precaution and care.

Let me illustrate this, by adducing a few examples.

In the spring or fall, when no drones exist, and brood cannot be found or obtained, we introduce a fertile reserve queen, and the colony is instantly restored to its normal healthy condition.

On a revision of his stocks, the bee-keeper infers from the scattered state of the brood in the combs, or the interspersion of drone larvæ among worker brood, that the queen of one of his colonies is no longer duly fertile, or is becoming superannuated. He at once removes her, substitutes a reserve queen and thereby rescues the imperilled stock from probable ruin.

The queen of a colony has been removed, to promote increased storage of honey during the gathering season, and the time for re-queening has now come. Instead of inserting a brood comb or a sealed queen cell, a fertile reserve queen is introduced, and egg-laying and brooding are resumed without further delay.

Again, the bees of a colony show, by their restless, roaming, inquiring deportment, or their plaintive moans, that a great calamity has befallen them, and that they have suddenly become queenless. If, while examining the stock, the bees become quiet and seem content, so as to create a doubt of their condition, insert a sealed queen cell, and if it is not destroyed within twenty-four hours, they have no queen. Give them a reserve queen, and the misfortune is remedied.

Artificial multiplication of colonies cannot be too highly recommended, especially to such bee-keepers as are compelled to be away from home frequently during the swarming season. But precisely the easiest and most convenient mode of making an artificial swarm (placing a few brood combs in a hive and setting this on the stand of a populous colony removed elsewhere) is obviously defective and liable to fail. In the first place, bees accustomed to a fertile queen will betake themselves to mere brood combs with great reluctance, and only after long resistance—many scattering to other stock, if any be near at hand. And, in the second place, after the bees have yielded to what proves to be an unavoidable necessity, they have still to rear a young queen, which involves delay; and they may yet lose her after she is mature. If we prefer giving to the colony the queen of the removed stock, we must undertake the laborious task of searching for her amid an excited crowd of workers—a search not always successful, and which, if successful, involves the re-queening of the deprived stock, with all its attendant risks, disadvantages, and evils. The speediest, safest, surest and most convenient mode of multiplying, therefore, is to let the old queen remain in her hive when it is removed; place a few combs with brood and honey in the nucleus; introduce a fertile reserve queen in a cage; liberate her when she is accepted; and then build up the colony by inserting sealed brood from other stocks.

If it be desired to divide a strong old stock equally, so that each division shall receive its due proportion of bees, combs, and stores, and be able to reach a wintering condition in the course of the ensuing season, the very best course is to give to each division a fertile young reserve queen immediately—unless that of the old stock be young, fertile and prolific. In such case she should be retained in one of the divisions, and a fertile reserve queen given to the other.

These suggestions sufficiently warrant the position I assumed at the outset, that every provident bee-keeper should adopt measures to have a constant supply of fertile young queens in reserve, through the entire year.

Let us now address ourselves to the pertinent inquiry—"*How shall the bee-keeper provide himself with the requisite number of normally prolific reserve queens?*

Our excellent old grandmaster, Dzierzon, has said and written much about artificial swarming, and frequently treated the matter with such glibness as induced inexperienced bee-keepers to imagine that nothing more than a handful of bees and a few square inches of brood comb are needed to produce a respectable colony in the course of the season. I have never been able to accomplish so desirable a result with such small means, and I presume that most of my worthy readers were not more lucky, unless additional comb with brood and bees were introduced time and again. It will ever remain an inexorable rule, that if we would get an artificial swarm in a condition fit for wintering, we must bring it to full strength at once, by aiding it with brood and bees.

Almost all experienced bee-beepers agree in this, that weak swarms are never to be set up as independent stocks; and that natural and artificial swarms and nuclei are to be strengthened at once, by immediately transposing them with the parent stocks, though each of these be furnished with a young and fertile queen. But, it may be asked, how many bees must a young colony have, to make it fit for wintering? If a good natural swarm should weigh at least three pounds, or at most six pounds, and it takes from four to five thousand bees to make a pound, then a colony should consist of from

twelve thousand to thirty thousand bees to enable it to pass the winter safely. In what then consists the ability of any kind of artificial swarm to increase, from a mere handful of bees, to a due wintering condition? It is certainly not to be found alone in the circumstance that the swarm has been made a few weeks earlier in the season. It arises solely from the practicability of gradually, yet speedily, building up the feeble community, by the regular introduction of brood and bees from other colonies. But this is in direct contravention to the assumption that a handful of bees, in possession of a comb of brood, can develop itself in the course of the season to a colony qualified to pass the winter safely. Yea, it would be like adopting a business in which I am assured that, by an investment of ten dollars, I should gain a thousand. But the ten dollars prove to be only the first outlay, to which ten more are to be added, and then thirty, again a hundred, and furthermore two hundred in addition. If I cannot do this, then the thousand dollars gain will ever remain among the things to be hoped for. If I cannot add to the little swarm or nucleus first one, and then two, and finally three, four or five combs with brood, and very likely also several combs with honey, it will never reach a condition fitting it to withstand the rigors of winter, and whatever is done is totally lost.

Now, worthy friends, those of you who are masters in bee-keeping Israel, may do as seemeth good in your own eyes; but let the younger brethren, whose minds are yet open to good counsel, be advised never to make small artificial colonies in the expectation that these will, by *unaided natural growth and development*, become strong winter-standing stocks in the course of the season. On the other hand, when they resort to artificial swarming, let them be sure to make their colonies strong at the outset, each having at least twelve thousand workers, or obtaining that number, within ten days or two weeks, from the brood combs inserted in the hive. Let them avoid all uncertain speculations, and strain after nothing which they cannot conveniently and certainly reach. A large number of small swarms is easily made; but to strengthen them afterwards and build them up properly, by means of brood and bees, is very difficult and ofttimes utterly impracticable, unless you have already many stong old stocks.

But when the bee-keeper has thus formed strong artificial colonies, he must be not the less solicitous for their conservation and steady growth. He must not abandon them to their fate, so that, perchance, five or six weeks later, they shall contain only two-thirds or only one-half of their original number of bees, and possibly be without brood or even a fertile queen. That would be losing both interest and principal. Such a colony should never be started with a queen cell or mere brood, but always with a fertile reserve queen, so that its growth and prosperity may be secured from the outset.

The case is far otherwise with a small nucleus containing, at the start, only about a thousand workers and a comb of brood, and which receives no subseqnent aid. Whether these thousaid bees furnish their owner with either honey or wax, is of small consequence. They are designed to subserve a different purpose; they are to labor for others—for the common benefit of the entire apiary; in short, they are intended to supply the required reserve queens, which future operations render so desirable and important. Though in the course of the summer, they furnish only two fertile queens, by means of which the destitution of other strong queenless colonies can be quickly relieved, they have well repaid their cost. And should it happen, as once in a while it will, that the nucleus fails to furnish any fertile queens, no serious damage would be sustained, as every judicious operator will each summer provide and maintain a number corresponding with the extent of his apiary and his intended operations.

"Ah, then, *weak* nuclei nevertheless, with brood combs, and merely to raise reserve queens! We see no advantage in that!" As you please, good friends; but consider—it is not a matter of indifference whether a nucleus of one thousand bees be engaged for weeks and months in rearing queens, or a colony of from twelve thousand to sixty thousand bees be thus occupied during that time. It is not a matter of indifference whether a small colony or a populous stock be kept queenless. It is not a matter of indifference whether the bee-keeper has to examine repeatedly a nucleus containing only three combs, or a colony containing ten, twenty, or thirty, before he can ascertain whether the queen newly raised has become fertile.

I will now state my method of raising reserve queens.

First of all, nucleus hives must be provided, of a size fitted to receive three combs or frames each, such as are used in our large hives; and there should be from three to six such for every ten of the large hives in the apiary, according as increase of colonies is intended to be more or less rapid during the season.

These nucleus hives should not be populated in the spring, till after the bees have been gathering honey and pollen plentifully, and the brood combs are well stocked with eggs and larvæ, some drone brood being already capped. Though I may name definite days for operating, I do so simply for illustration; since the weather, temperature, and other circumstances may compel various deviations from regular routine. I am besides no advocate of early multiplication, because I know from experience that in most localities brood developes slowly in the spring, and an early abstraction of brood and bees is detrimental to the old stock.

About the 30th of April, take two nucleus hives for every ten old stocks that have been wintered in good condition, and insert in each nucleus one empty worker comb. At this period, there will probably be found among ten old stocks two that can each spare a comb of worker brood; and the remaining eight will be able to furnish in the aggregate four thousand workers. A comb of brood is now to be placed in each nucleus; and where circumstances permit, combs containing a large proportion of

capped brood should be selected, though it is indispensable that they contain some eggs and recently hatched larvæ. The lower margin of each brood comb should also be pruned off till the cells containing eggs and larvæ are reached. This is not absolutely necessary, but experience shows that bees are more disposed to start queen cells on such freshly pruned margins; and cells there built can usually be more easily removed. When the nucleus hives are thus prepared, the old stocks are to be opened in succession, a brood comb lifted out of each and the bees brushed off from it into the nuclei until each contains about two thousand—replacing the combs in the hives from which they were taken. A comb containing about one-and-a-half pounds of honey is now inserted in each nucleus. These are then closed and carried into a cool, dark, dry cellar or chamber—the entrance of each nucleus being secured with wire gauze or a piece of perforated zinc, for ventilation and to confine the bees.

The bees will speedily start queen cells. On the ninth day, or on the 9th of May, the nuclei are to be examined, to ascertain how many sealed queen cells each contains, or rather how many queen cells can be made available uninjured by removal.

Assuming that from the two nuclei eight queen cells may be taken uninjured (and there will rarely be more, usually fewer), six more nuclei hives are to be prepared by inserting an empty worker comb in each; and they are then carried to a chamber, or other suitable place with closed doors and windows shut, so as to be free from annoyance by the bees in the apiary. The brood combs are now to be taken out of the nucleus hives, the bees brushed off into each hive, and all the queen cells, save one on each comb, carefully cut out, the comb replaced, some honey introduced if needed, and the nucleus again closed.

The queen cells thus obtained are to be laid on some soft cotton wadding, and gently covered with the same article. The nuclei are then to be examined, to ascertain whether they still contain a sufficient number of bees. If there are at least a thousand remaining in each, and the combs still contain a considerable quantity of unmatured brood, all right. But if the number be smaller, they should be reinforced from those that have flown to the windows—which may be brushed into a basin of water, strained out, and restored to their companions. These two nucleus hives are then to be replaced in the cellar or dark chamber, whence they were brought.

The six additional nucleus hives are to be treated as follows: Close the entrances with wire gauze or perforated zinc, and suspend in each nucleus a comb filled with brood, and all the bees adhering to it, taken from one of the eight reminaing old stocks.

Now, new nucleus No. 1, is to be taken in hand. Open it, lift out the brood comb, brush off all the bees into the hive and on the empty worker comb it contains, insert a queen cell in the brood comb, and replace it in the hive, which is then to be closed and set aside.

Next, *new* nucleus No. 2, receives attention. It is opened, the brood comb lifted out, and the bees brushed off into *No.* 1, (which is to be opened to receive them), and the deprived comb is set aside temporarily. To this nucleus is also given a comb containing about one-and-a-half pounds of honey. Thus supplied No. 1 is again closed, and sent to the cellar or dark chamber. We then take No. 2 in hand again. Inserting a queen cell in the brood comb taken from it, (and from which the bees were brushed into No. 1 before it was set aside), it is replaced in No. 2, on the empty comb in which some bees will already have collected. No. 3, is now opened, the brood comb lifted out, the bees brushed off from it into No. 2, and the comb set aside temporarily. Giving No. 2 a comb of honey likewise, we close it and send it also to the cellar or dark chamber.

This process is repeated till five of the nuclei have thus been formed, and dispatched to their colleagues in the cellar or chamber.

For nucleus No. 6, we have a brood comb and a queen cell in readiness, but we still want bees. We insert the queen cell in the brood comb, placing this in No. 6. We then open those of the ten old stocks from which no bees have yet been taken, lift a brood comb out of each, brush off the bees into No. 6, and replace the combs in their respective hives. If more bees seem to be required, brush those gathered at the windows into a basin of water, strain them out as before, and introduce them in No. 6. We then give this nucleus a comb of honey also, and send it to the others in the cellar or dark chamber.

Your old stocks must be in good condition to be able to furnish bees enough for eight nuclei so early as the 9th of May. It was nevertheless judicious to make two nuclei on the 30th of April, so that all the labor should not be lost in case one failed to raise queen cells. But on the 9th of May, it is a matter of serious consideration whether it be not too exacting to demand bees for eight nuclei from ten old colonies. The masters, indeed, tell us that the removal of a comb of brood or of several thousand bees from a strong colony, is only a beneficial deprivation; but they expressly caution us against applying the process to a colony still weak. Those who are not yet masters are very apt to regard weak stocks as strong, because they wish them to be so; and they are the more easily tempted, especially so early in the spring, so to reduce a weak colony that it can recover only with difficulty, and will produce neither a swarm nor surplus honey that season. Where no large increase of stocks is contemplated, it is useless to start so many nucleus hives; but even where such increase is desired or designed, it is best to be cautious and make only two or three additional nuclei on the 9th of May, instead of six—unless the old stocks are already very populous.

The nuclei are now finished and placed in the cellar or dark chamber. Here they are to remain till all the young queens and most of the brood have emerged; and that this may not involve too much delay, the nuclei were furnished on the 9th of May, as far as practicable with

capped brood. They are then to be carried to some place in the garden where they can remain undisturbed during the summer. But they must not be set in close proximity to other populous stocks, nor too near each other, or the young queens may go astray when returning from their wedding flights and be destroyed. As to the time of removal, there is a difference of opinion. Some think they should be kept in the cellar or in the dark not longer than from three to six days, that the emerged queens may have an early opportunity to make their excursions, and the bees begin to work. But these reasons are of little weight. How many queens reared in populous colonies are prevented for days from flying, by unfavorable weather; and an early fertilization of these reserve queens is of far less importance. It is much better that a large number of workers have emerged previous to removal, and it is hence early enough to bring them out on the ninth day, or on the 18th of May. They will then be more populous and thrive better. But if the weather be bad on the 18th, better let them remain in the dark till a change takes place.

At last we have them in the open air. Now each nucleus is to be carefully inspected. If in any the bees have failed to raise a queen, we we introduce immediately a comb of suitable brood, with all the adhering bees, from one of the most populous stocks in the apiary, that it may make up for lost time with all speed; or we give it a sealed queen cell, if we happen to have one in some old colony.

The young queens will be fertilized in due course. As soon as one of them begins to lay, she may be used as a reserve queen; but it is by no means necessary that she should be thus disposed of at once. It is better to allow each one time enough to deposit eggs plentifully before she is removed. We can then form some opinion as to her quality and prolificness, from the more or less compact arrangement of the brood in the combs, and the quantity of eggs she lays in a given time. This also saves us some further trouble, for if the young queen be removed when she has laid only a few eggs, we shall have to insert another brood comb, or the nucleus will become too much depopulated.

As soon as the young queen is removed from a nucleus, the bees proceed to rear a successor. This imposes the necessity of careful watching, to be certain that this successor becomes fertile in due time and lays worker eggs. Each successive removal will be followed in like manner by renewed queen-raising, if the young queen laid eggs before leaving. If sealed queen cells are at command on such occasions, they can be used with advantage.

If there be any interruption in this business—if the bees, for instance, neglect to start queen cells in any case, or prematurely destroy those that have been started; or if a young queen be lost on her wedding flight; the bee-keeper must act promptly, by inserting a comb of brood from some other hive.

Of course supernumerary sealed queen cells will occasionally be found in some of the nucleus hives, under this management. These must not be permitted to hatch, or a very undesirable swarm might issue. If there be no good opportunity to use them elsewhere, the cells should be destroyed.

If a nucleus has been repeatedly deprived of its queen, or has failed to rear one, it will become much depopulated, and should be reinforced by introducing a brood comb with its adhering bees; and as the season advances combs with sealed brood will be more abundant in the old hives. The nuclei must never be allowed to suffer from want of food—for which purpose, at this season, sugar candy dissolved, or sugar syrup diluted, is preferable to pure honey. If a queen remains a long time in the nucleus after she begins to lay, the little hive may become over populous. In such case a portion of the bees and brood may be used to strengthen weaker nuclei or other stocks; or a new nucleus may be formed, as before described. But if we are satisfied that we have already more reserve queens than we are likely to need, such a populous nucleus may be transferred to a large hive and built up to a strong colony by giving it brood and bees from other stocks, or by transposing it with some populous colony.

By these means we shall always have a supply of fertile reserve queens at disposal, from the first of June onward. In districts with very early pasturage, an earlier commencement may be made; but I would caution against beginning anywhere, till some of the old stocks that have been wintered contain capped drone-brood.

Well, now, suppose that, in the course of the summer, we have effected the desired increase of colonies, and all of them have fertile queens, we still have the nuclei on hand, and these have fertile queens also, or have started queen cells anew. What is to be done with them? Primarily, nothing more than to see that they do not suffer want.

About the end of September, or at latest in the early part of October, the last general examination and revision of the apiary must be made. If a queenless colony be now found, a fertile queen must at once be introduced; and the nucleus from which this queen is taken is thus made queenless. It is then immediately broken up, by transferring bees, brood, and honey to some colonies that will be benefitted by such aid. But we still have remaining a number of nuclei with fertile queens. To be able the more readily to unite these, they are, after the 1st of September, to be gradually set closer together, till they are finally all brought side to side. Now, we remove them and place on their stand one or more larger hives; transfer thereto the combs and bees from these nuclei; supply them with the requisite honey to carry them through the winter; and place them in a dark cellar till spring.

But it were a great pity to lose the supernumerary fertile queens resulting from this process of uniting. We must therefore endeavor to preserve them, which I do as follows: While uniting these nuclei, I select and retain for the duplicated colonies the largest and finest of the queens, and catch and cage the others, suspending each temporarily on a comb in her

own small hive, and setting these on their former stands. After a few hundred of her own workers have clustered around each, I close the hive so that not a bee can leave, though I give them sufficient ventilation and food. Small as these nucleus hives are, so diminutive a body of bees could not be successfully wintered in them. I therefor prepare some small boxes about six inces long, broad and deep, which can be conveniently set in the now empty honey chamber in the top of my standard hives. These are furnished with combs containing about two pounds of honey, and in each of them is placed a liberated queen with her adhering cluster. When they have become settled, the entrance is closed with wire gauze; each box is now set in the honey chamber of a populous colony and packed in moss. The bees off the standard hive are of course shut off from the honey chamber, and a small hole is cut in the front of the hive for the use, at the proper time, of the bees in the box, but is kept closed till needed. In February or March, according to the season or the weather this hole is opened, the wire gauze removed from the entrance of the box, and the bees allowed to fly out occasionally.

If, in the early spring, I discover that one or more of the colonies in my apiary has become queenless, a remedy is at hand in the small box hives, and the preserved queens are at once used to set matters right. Should they not be needed for this purpose, a nucleus can be formed early, by means of each surviving queen, and kept in a dark cellar till the brood given to it has emerged. As soon as spring fairly opens and the bees can gather pollen and honey, this nucleus may be brought out, set on its designed stand, and either formed into a strong independent colony by further additions of brood, or kept in reserve for any emergency that may arise.

In this way the bee-keeper may preserve these fertile queens, and start artificial colonies much earlier than usual; which, having a long season before them, can hardly fail to thrive, become populous, and secure stores enough for winter, without subsequent aid.

Those who visit Paris on the 15th of August, (Napoleon's day) will be amazed to see the immense quantities of cakes displayed on the banks of the Seine, in Passy, at the Bridge of Jena. On the rising ground, all the way up to the Arc of Triumph, stand after stand is seen loaded with ginger cakes, honey cakes, and sugar cakes, of all qualities and prices—cheap, dear, good, bad, and indifferent.

The Dahlia, it is said, possesses some narcotic property which seems to paralyze bees when they enter the flower for the purpose of collecting the honey or the pollen. In the fall, when the Dahlias are in full blossom, numbers of bees may be found in them in a state of stupefcation, which ends in death if they are not removed from the fatal influence of these flowers.

[From the Bienenzeitung.

Cure of Drone-Breeding Colonies.—Introducing Unfertilized Queens.—Artificial Swarming.

The cure of a drone-producing colony having a fertile worker is still regarded, by most bee-keepers, as a difficult task, attended by many annoyances, and always of doubtful issue. And yet nothing is easier than to cure such a colony—else infallibly doomed to destruction—radically, in ten minutes.

I made known the process at the Convention of German Bee-Keepers at Hanover, in 1860; but it does not seem to have attracted the attention which it merits. It is simple and perfectly reliable, whilst all other processes hitherto suggested, troublesome and tedious as they are, very seldom prove successful. All that is required is to stupify the colony by fumigating it with puff-ball smoke, and at once introduce a fertile queen among the bees before they revive. This done, the cure is effected. It is not even necessary to make an examination next day, to ascertain the result, for the process never fails. Nothing can be more simple, and it is applicable in every form of hive.

I think I have also, on a former occasion, explained incidentally how I manage to induce colonies, in movable comb hives, to accept unfertilized queens. But it may be useful to restate it here. One or more combs containing suitable brood are to be inserted in a queenless colony, and in four or five days they are to be examined to ascertain how many queen cells have been started. If I find, say, twelve such cells, I remove the queens from eight or ten of my colonies. On the twelfth day, I remove the combs containing the queen cells to the rear or side of the hive, for more conveniently supervising them, that I may be sure to see the first matured young queen issue from her cell. As soon as she is out, I brush off all the bees and the queen into the hive, destroy the now empty queen cell to guard against mistake, and insert the comb in one of the deprived colonies. I now wait till another queen leaves her cell, and then the same operation as before is repeated, and the comb transferred to another of the queenless colonies, in due order; and this is continued until all the colonies are supplied, or all the young queens are disposed of.

Unremitting attention and watchfulness, and care to examine the queen cells at least once every hour, are indispensable for success. But with them success is certain; and this watchfulness and care will save the bee-keeper the vexation, annoyance, disappointment, and loss of precious time, which are inseparable from other methods. The introduction of an unfertilized queen in a colony accustomed to the presence of a fertile one, is always attended with great risk. A just emerged queen given to such a colony is wholly disregarded by the workers, and if not at once attacked and destroyed, will commonly be allowed to starve. It is not till after a queen is four or five days old, that the bees of such a colony would begin to feed and cherish

her. Besides this, longer confinement is required, for three days are wholly inadequate. All this involves delay; and "delays" here are ofttimes indeed "dangerous."

As stated, I prefer this mode of introducing unfertilized young queens, though it demands great care and watchfulness. Sometimes the young queen emerges at night, and the operator must then of course be on hand, and act promptly. He must not procrastinate, or he may wake up and find all his queen cells destroyed. It is well to mark the cells in the order they were built and sealed over, for the queens they contain will mature and emerge accordingly.

I do not like to insert queen cells, for they are generally destroyed by the bees—which does not happen to those left on the introduced comb. According to my observation, when workers have once gnawed open and destroyed a queen cell, it is almost always useless to offer them another, for they are then prone to repeat the trick, and will serve four or five more in like manner, if they have an opportunity.

Has any one tried the mode of making artificial colonies suggested by Dr. Dönhoff some years ago? In substance, I think, it is as follows: Queen, workers, and drones—which may all be taken from different colonies, are put together in a hive, which is set in a dark cellar for three or four days. Then, on a fine clear afternoon, it is brought out, set in the sun, fed with diluted honey, and allowed to fly. The entire colony will issue, *en masse*, will soon settle and cluster like a swarm, and then adhere to any location assigned to it in the apiary. Would not this also be a means of securing pure fertilization of the queen, if of the Italian race, and only pure Italian drones be selected for the colony? HUBLER.

ALTENBURG, DEC. 1867.

The bee-keepers of Gatinais, Beauce, and the neighboring villages and districts, in France, meet annually on the 22d of July, at Janville, to consult about their bees, apiaries, the construction of hives, changes and improvement in the management of bees, new inventions, processes and manipulations in bee-culture; and to ascertain the amount of honey and wax produced, so that prices may be regulated accordingly. These annual meetings are thus of great practical, scientific, and pecuniary importance to the bee-keepers who participate in them.

Probably the largest wax bleaching establishment and factory in the world, is that of M. Barret, at Tours, in France. The buildings are extensively and admirably arranged, and more than six hundred persons are usually employed there. The consumption of wax for encaustic painting, wax figures, polishing floors and parquettes, the manufacture of wax candles and tapers, in pharmacy, and for general economical purposes is very great in France, alike for home use and for exportation.

After eating a quantity of honey, we are apt tot hink our tea is without sugar.

[From the German.]

Pure Fertilization. Kruger's Method.

For convenience in operating, to secure the pure fertilization of queen bees, light single hives are indispensable and small nucleus hives are peculiarly well adapted.

These hives, after being supplied with the necessary workers, drones, brood or queen cells, and well provided with honey, are to be placed in a retired or isolated spot, at some distance from the hives in the apiary, even though the bees are brought from a remote locality. They should also be set with the entrances fronting the west, so as to give the bees the advantage of the sun, when they are flying late in the afternoon or in the evening.

In this position the hives are to be left until the young queens are hatched and ready to make their excursions, which in such small colonies is not usually before the sixth day.

On the evening of the fifth day, when the bees have ceased to fly, or early on the morning of the sixth, while all are still at home, the hives are to be closed and carried to a cool dark chamber or cellar, where they are kept till the afternoon of the following day. On the afternoon of that day, if fair, and the sun is shining, at a temperature of 72° or 75° F. in the shade, and the drones of the other colonies have ceased to fly, the hives are to be brought out and replaced on their former stands, with the entrances open. The bees must then be fed with diluted honey made lukewarm. They, as well as the drones, will immediately begin to fly very actively, and the queens, leaving in these circumstances, will meet only such drones as have been selected.

If the weather be cool or cloudy, the queens will not leave, and the hives must be closed when the bees become settled, and again carried to the dark chamber or cellar. In unfavorable states of the weather, it may happen that ten or twelve days may elapse before fertilization is effected, and the hives may have to be carried out and in repeatedly; but the bees need not be fed on each occasion, unless there be a prospect that the weather will allow them to fly briskly.

When several nuclei have been prepared and stocked with workers for this purpose, care must be taken to provide them with an adequate number of drones; though, when operating to this extent, it is advisable to arrange a separate nucleus containing drones in larger number, and a drone comb with maturing brood.

These hives or nuclei having been so placed that they can readily be supervised, the bee-keeper who employs this process must be careful to watch them closely when the bees are permitted to fly, and observe whether the queen issues. He may frequently see a queen come out, fly about in front of the hive a minute or two, and then retire, returning in a short time to repeat the manœuvre. If any fail to come out a second time, he may feel confident that she will make her wedding flight next day, if the weather prove favorable, and must not

neglect to bring out the hive or nucleus containing that queen—continuing to do so till satisfied that fertilization has been effected. If the queen is not seen returning with evidence of impregnation, the hive may be opened in the evening before removing it from the stand, and a more careful examination made at leisure. An inexperienced or inexpert operator, who doubts his judgment in the matter, continues the experiment daily, till he finds eggs or brood in the worker cells.

The best season for employing this process is the spring, after first swarms have left, and before second swarms make their appearance. If second swarms have issued from some neighboring colony, the operator may oft be disappointed, as those late-flying drones may interfere with and defeat his experiments.

The hives and nuclei used must of course be properly ventilated, that the bees may not suffer or be kept in a state of excitement while in confinement. Means should also be provided for feeding the bees when necessary without opening the hive, otherwise the queen may become alarmed and deterred from coming out when the workers are flying.

I did not originally regard or treat this process as a secret; but communicated it to many of my friends and visitors in free and familiar conversation. But after the effort was made to procure compensation to Mr. Köhler for promulgating his method, (which I did not doubt was essentially like mine), I ceased to speak of it, till Lieutenant Wedell, who was acquainted with it, announced the fact in the BEE JOURNAL, and obtained for me some pecuniary remuneration likewise, for which I feel duly grateful.

It now appears that several other apiarians have for some time been using substantially the same method. KRUGER.

EDWARD'S SPRING, June 15, 1868.

Death from the Sting of a Bee.

Mr. Osmond Patton, of Westmoreland, Oneida county, (N. Y.,) died on Sunday, June 21st, from the effects of being stung by a bee. The puncture was made over the left eye, and in about fifteen minutes afterwards Mr. Patton felt faint, and finally died in about three hours.

It is to be regretted that a more full account of this occurence has not been furnished. What were the circumstances under which Mr. P. was stung? Was he much excited or fatigued at the time? What was the general state of his health previously; and of his physical condition when stung?

"Nothing can be well done, that is done out of season," is a truth which a novice in bee-keeping should impress on his memory, and avoid illustrating in his practice.

He that licks honey from thorns, pays too dear for it.

[For the American Bee Journal.]

A Criticism.

BY W. W. HIPOLITE, M. D.

In the BEE JOURNAL for July, B. F. Babcock calls attention to an extract from a work lately written by Mrs. Agassiz and her husband, the Professor, advancing a somewhat novel idea regarding the mathematics of the honey bee, as exhibited in the construction of its comb. It claims that,

> "The bees stand as close as they can together in "their hive for economy of space, and each one deposits "his wax around him, his own form and size being the "mould for the cells, the regularity of which, when "completed, excites so much wonder and admiration. "The mathematical secret of the bee is to be found in his "structure, not in his instinct."

We know not what the Professor's advantages have been in securing data on which to found his hypothesis; and we feel in no small degree timid in making an assault on the doctrines promulgated by him. Notwithstanding, however, his position and senile dignity, we claim a voice, because our knowledge has been derived from personal observation; and justice to ourself, and to our bee-keeping friends, prompts us to place on record our dissent from such erroneous views. In order to entitle this idea to a place among scientific discoveries, two things are certainly necessary. One of these is that it must be *new;* and the other is that it must be *true.* The first of these qualities we readily admit it to possess, namely, that it is *new;* but neither, alone, will constitute a discovery; both are required.

A story is told of a young clergyman who inquired of an older one, who had been present at the delivery of one of the young man's discourses, what he thought of his production. The old man said, "There were many things in the discourse which were new, and many things that were true." The young man, pleased with the remark, thanked very warmly his senior for his good opinion; "but," added the old man, "the new was not true, and the true was not new." This altered the aspect of the criticism, and gave the young brother a "realizing sense" of the importance of both originality and truth to constitute high merit.

A scientific discovery, as we understand it, is the development and presentation of a new fact or new principle; and the fact or principle must be capable of clear proof, of demonstration, or it can only be regarded as an hypothesis—a mere conjecture, more or less plausible according to the reasonableness of the case. Not only must it be most clearly new, but also demonstrably true. If that which claims to be a discovery be neither new nor true, it will be the farthest possible from what it claims to be. His hypothesis requires something approaching demonstration, in order to place it in the category of ascertained facts—to make it a discovery. But, to our apprehension, he has offered nothing of the kind, and nothing worthy the dignified name of discovery has been made.

All who have studied the writings of the

greatest of philosophers—Lord Bacon—must know that there are two especial sources to which he refers men for real increase of knowledge, namely, to observation and experiment; which he insists are but questionings of nature in respect of specific matters. To cultivate the faculty of observation must then be the first duty of those who would excel in any scientific pursuit. To such an one it may be said that the habit of correct observation is that mode of learning, which above all others, he should most diligently cultivate; remembering that observation does not consist in the mere habitual sight of objects—in a kind of vague looking on, so to speak—but in the power of comparing the known with the unknown; of contrasting the similar and dissimilar; in justly appreciating the connection between cause and effect; and in estimating, at their correct value, established facts.

As regards the construction of the cells of the honey comb, it is quite evident the Professor's knowledge has not been derived from correct personal observation; and we must conclude that he has looked at the subject through a distorted medium. It is to be exceedingly regretted that a man of such calibre, and of such world-wide reputation as a naturalist and author, should be so easily thrown off his balance. We have no disposition to disparage the merits of the work, or of the justly celebrated author from whose pen its contents, in part, emanated; but must confess ourself surprised that any one should so confound known facts and the scientific principles which are deduced therefrom—to see such ignorance and its consequences pervade a book, where we ought reasonably to look for the most intelligent representation.

Though we rightly hold him responsible for the appearance of this hypothesis, inasmuch as he is announced as one of the authors of the work from which the extract was taken, yet it is quite possible the idea first originated with Mrs. Agassiz, and arose from a laudable desire to see the *lordly drones* abandon their lazy habits, and engage in some useful occupation—for it naturally follows that when drone comb was to be built, *they* would have it to build. But I opine some of our bee-keeping friends would enter a protest, when some of their choice queens were thus degraded. If taken at a time when a colony is preparing to throw off a prime swarm, and whose queen is engaged to the utmost in depositing eggs that brood may be raised, they would dislike to believe that, when a number of queen cells were to be built, she would cease laying and engage for days at a time in building them. Perhaps, however, when both kinds of labor are required, two or more queens are furnished the colony—one to lay the eggs, and the others to build queen cells. As we have been left in the dark on this point, we would suggest that it might be well for bee-keepers to be on the lookout, and when they again find more than one queen domiciled in a hive, to carefully note what is the seeming occupation of each. It now becomes doubly clear why a colony should never be left queenless—if otherwise, how could they ever hope to raise queen cells?

There are a number of other points deserving of attention, but the length of this communication forbids that we should name them here. Before closing, however, we would, in view of Professor Agassiz's hypothesis, caution purchasers against selecting colonies whose combs have many irregular cells—such as are often seen where worker merges into drone comb—for such cells, we can readily suppose, might indicate that the colony contained bees of an *irregular shape;* for it is claimed that each bee "deposits his wax around him, his own form and size being the mould for the cells." Such irregular shaped bees would be unsightly, if nothing worse; and might seriously interfere with the due performance of a "function, as inevitable in its action as digestion or respiration."

JONES' GROVE, WIS.

Queen Elizabeth's Mead.

Take of Sweetbriar leaves and thyme each one bushel, rosemary leaves half a bushel, and bay leaves one peck. Seethe these ingredients in a kettle of water containing probably no less than one hundred and twenty gallons, boilt ing for half an hour. Pour the whole into a vat or sufficiently large wooden vessel, and when cooled to a proper temperature (about 75° F.) strain it. Add to every six gallons of strained liquor one gallon of fine honey, and work the mixture together for half an hour. Repeat the stirring occasionally for two days, then boil the liquor again, skim it till it becomes clear, and return it to the vat to cool. When reduced to a proper temperature (about 80° F.) pour it into a cask from which fresh ale or beer has just been emptied, work it for three days, and then tun it.

When fit to be stopped down, tie up a bag of beaten cloves and mace (about half an ounce of each) and suspend it in the liquor from the bunghole. When it has stood half a year it will be fit for use.

To Make Mead.

Take three gallons of water of blood warmth, three half-pints of molasses, two-thirds of a table spoonful of ginger, one-third of a table spoonful of allspice, and mix well together with a gill of yeast; let it stand over night, and bottle next morning. It will be in a good condition to drink in twenty-four hours, and is a palatable, wholesome beverage.

A piece of the bark of an oak tree that has been struck by lightning, is selected by some bee-keepers and nailed or fastened to a tree near the apiary, to attract and arrest issuing swarms, and induce them to cluster where they can easily be secured and hived.—OVERBECK.

In Western Pennsylvania, it is a popular belief that bees will invariably sting red-haired persons as soon as they approach the hive.

[For the American Bee Journal.]

The Varronian Theory.

Association begets thought, and thought sharpens intellect, and leads on by almost imperceptible degrees to the discovery or development of some science or art. Thus it is that such a periodical as the BEE JOURNAL becomes the representative of our thinking heads; and often a hint from one leads another on to a standpoint far in advance of what would have been attained unaided, Facts are brought to light; error is exposed; and theory gives way to practice. Hence discussions are valuable alike to all, and TRUTH sooner or later triumphs; the sharper the conflict the sooner it is over, and the brighter she shines. One fact is worth all the speculative theories in the world. Theories conflict; facts never do.

By this rule, I propose to try the Varronian theory, with the single purpose of arriving at the truth; and as there are several points which I desire to notice, and not wishing to misrepresent the author, I will give his own language, and follow with my remarks.

"Abnormities in the animal kingdom originate in a forced compliance with the normal decree of Providence." Say, rather, in a failure to comply with the normal decree, or to the absence of some of the elements essential to the formation of a normal organism. "Appropriate food maladministered, and inappropriate food well administered to the young of any animal, constitutes a forced compliance with the normal decree of Providence." Maladministration of proper food, and inappropriate food well administered constitute a clear case of *non*-"compliance with the normal decree of Providence." Providence either decreed that inappropriate food should be the normal food, or else He did not. If He did, then giving it is "no forced compliance." If He did not, then it is no compliance at all, but a clear case of non-compliance or violation of normal decrees.

"In the hive all individuality not reared directly from the egg, *ab initio* as such, implies forced or unnatural compliance." Compliance with what? Unnatural compliance with the law of nature! This would be nonsense. And if nature be thus kicked out of doors, what does rule the economy of the hive? "Fertile queens reared out of season, drone-laying queens, and fertile workers, are abnormalties," We beg to know what particular time is to be considered out of season. In this latitude bees swarm all the way from May to September, and I had thought there was scarcely a day the year around that bees were not swarming somewhere in the world, and of course rearing queens. "It is therefore evident that the greater portion of this substance [royal jelly] is an animal secretion, and being mixed with gastric juice and pepsin, &c." I have yet to learn that royal jelly has ever been discovered in the stomach of workers; much less that it has been found to contain "gastric juice and pepsin;" and should like to have the evidence of it. "A minute quantity of sugar is discoverable in it, which transforming from starch or pollen, and having as yet not had time to completely change into lactic acid, imparts, no doubt, to this royal food its pungent flavor." But has starch or pollen been found in said royal jelly? If starch is *there* lactic acid may doubtless also be had, provided decomposition goes far enough to decompose the starch. I feel very much disposed, however, to doubt the presence of starch, or pollen either, since the usual chemical tests fail to detect them. (See Analysis of Royal Jelly, BEE JOURNAL, vol. I, page 36). Albumen or fibrin are present, but we do not get lactic acid from them. Nor do we get it from pollen; but we would probably get ammonia, carbonic acid, and sulphuretted hydrogen, as a result of decomposition and recomposition of the carbonaceous and nitrogenous constituents of this jelly. "From the presence of fatty matter in this royal peptone, I infer that worker eggs play an important role in it, for it is well known that the yolk of eggs contains not only oil in considerable quantity, but also spermatozoids." This inference, based on certain known facts in regard to eggs in general, will apply when it has been proven that bees' eggs have these requisites. I presume the oil and spermatozoids can be found; but even then the conclusion does not follow. "I believe, therefore, that when the egg from which a queen is to be produced is placed into the royal cell, the workers dose the incipient queen expectant *ab initio*, with worker eggs, prepared by them by simple insalivation, and thus not only furnish it with its appropriate pabulum, but also impregnate this egg, or larva, upon its immediate exclusion from this egg, with the spermatozoids present in these worker eggs." This strikes me as one of the most remarkable sentences I remember ever to have read in my life. If I understand the meaning, it is this:—the eggs and spermatozoids fed to this queen expectant, in this royal jelly, are to effect a kind of double impregnation. That is, they are to impregnate an egg that is already impregnated, and that too by way of the alimentary canal. On second thought, this enables me to account for the predominance of the swine element in some of our western people—they (get themselves with pig, that is) impregnate themselves eating pork! Happy thought! But that this is no unfair construction of the meaning of the passage, appears from the following—which fully explains the above:—"If Dr. Dönhoff, by artificial impregnation, has succeeded in rearing a worker larva from a drone egg, then my allegation that the workers, by means of royal peptone with its aliquot portion of worker eggs containing spermatozoids, *can effect additional impregnation upon the impregnated egg in the royal cell.*" The italics are my own. Now I would like to be informed how many of these eggs have to be fed to the expectant queen to secure enough spermatozoids to impregnate an egg already impregnated? Since each one of these eggs would develop a worker, and as workers are the "mud sills" of the colony, and since so many are fed to each queen, perhaps this may help to explain the high price at which the latter are sold! Query, would it not enable producers to sell queens at

a reduced price, if they could induce bees to use only drone eggs? What stupid creatures they must be, thus to destroy hundreds of useful workers to produce one queen, when a few drone eggs might answer; and as to spermatozoids, they could worry a few drones and get all they need. (See Kirby, in BEE JOURNAL, vol. I.)

But this theory is not unsupported. We are assured that Huber, Dzierzon, and Berlepsch agree in the same story up to a certain point, and then only differ in the details. Thus, "I differ in my story only in this with them, that I attribute the fertility of fertile workers to their pabulum of worker eggs and spermatozoids *ab initio*, whilst they attribute it to royal jelly." That is, they speak of it as a whole, without regard to its composition, while the theory assumes some special supposed fact included within the whole. They call it royal jelly; but here it is "worker eggs and spermatozoids." "They commit the egregious error of attributing to the alimentary functions of the bee that which, according to reason, philosophy, and anatomical research elsewhere, is attributable only to the organs of procreation, whether perfectly or imperfectly developed." Now, if the author has not committed the same "egregious error," I confess I am ignorant of the meaning of language. He doses them on "eggs and spermatozoids;" they on royal jelly. But if worker eggs are essential to this, I should be under obligations to be informed in what particular a queen produced as follows fails to be perfect. A sheet of comb containing larvæ from two to four days old, is given to a nucleus, and from these they produce queens, there being no egg in the hive.

In conclusion, I must be allowed to say that I fail to discover any new theory here, but simply an attempt to explain some other person's, in which attempt is manifested a great amount of ingenuity, based upon inferences and speculations, without the necessary facts to sustain it.

H. C. BARNARD, M. D.

CHARLESTON, ILL.

Bee Sting.

An Andover correspondent of the *Oxford Democrat* says that Mr. John Hall was stung by a bee, last Saturday, which caused him such pain that it set him into spasms. In about fifteen minutes Dr. Wall was called, and expressed fears that he would die. It had the same effect that the bite of a rattlesnake would have caused—but he is out of danger now.—*Maine Farmer, July* 25.

At the Paris Exposition in 1867, samples of honey produced by the native bees of Cuba, were exhibited in glass jars. The upper portion was yellowish or amber-colored, while the lower portion was brownish. It had a very sweet but rather cloying taste.

Daub yourself with honey, and you will have plenty of flies.

[For the American Bee Journal.]

Open or closed top Frames. Both sides of the question.

We all rather like to have others think as we do. It is a kind of compliment to our judgment, which some great men are not indifferent to.

When we have once adopted a theory or process, we naturally defend our judgment by defending the object of our adoption; and to a greater or less extent, all are unconsciously inclined to become champions of their own opinions. The contests that follow are sometimes carried further than the facts will justify. It is an easy matter to work ourselves up to a point where zeal takes the judgment prisoner; and exaggeration then seems to us the most powerful argument.

These reflections are suggested by reading some of the late articles on bee hives—wherein much that is valuable has been brought out, along with *some little* bad feeling and a great deal of *buncom*.

Keep cool, friends! the dog-days are upon us. Be earnest and courteous, but do not claim more than is *safe*. There are some good points in every hive, and none are perfect.

Now, I think Mr. See, in the June number of the BEE JOURNAL, claims more for the Langstroth hive than the inventor does, and more than it will be found entitled to, on trial. On page 171, Mr. See says, "to remove the frames, commence with the *third* one and push it against the fourth, and then shove the second against the third, and you can take out the first or side frame; and if you now wish to examine the rest, you have the room to slip them on the rabbets and can do so. And when you want to close the hive, *if* the first frame taken out will fit the place of the last comb moved, put it in; but if not, you must *slide them all back to the place they originally occupied.*"

Now, every practical apiarian, knows that the above is often necessary, and *not more* so with a closed top frame hive, than with an *open* one. Mr. See further says that it is necessary to take *all the frames* out of a closed top frame hive, till you come to the one you wish to remove. This may be necessary with *any* frame, but it is not any more so in a closed top hive, than in any other. When the tops of the frames touch, the side of the hive is made movable, so that the outside frame comb can be removed easily. The hive can now be closed or even left open, and the rest of the frames moved about or removed, as easily as in any other hive; and that too when only one frame has been taken out. The Langstroth hive requires *as much;* the closed top hive *no more.* Now I find there are times when almost any one would be glad to be able to remove the sides of a Langstroth hive, and thereby get room to manipulate the frames. My bees cram their hives so full of honey, with a projection here and a depression there, that I often find it very difficult to remove *any one* comb, even when I have crowded *all the rest* so close together that they are in danger of being crushed; and in these

vexatious cases I have felt like opening the sides with an axe, for with the very best I could do, I would often crush the combs, kill the bees, and have the honey streaming down on the bottom board, which speedily brought the robbers by scores to 'annoy me. Whereas, if my hive had been side opening, I could easily have removed a comb without so much work.

I am not a defender of *any* hive; have but a single side-opening hive in my apiary, and have no interest in any such. But while I use the Langstroth hive, I *know* it is not altogether perfect; nor do I condemn *all* others as altogether bad. Love of justice is my only object in writing.

While I am on this subject, I would like to ask bee-men everywhere, whether they have observed any difference in the honey-producing qualities of different hives. Will not bees take possession of honey boxes much sooner that rest on the top of the frames, than of those separated by an air space and honey board? My observations lead me to think they will; and where *honey* is our object, *this* is an important question.

One of my bee-keeping friends uses the Flander's hive, and he uniformly gets honey earlier than I do, notwithstanding his are black bees, and mine Italians; and this too when wintered the same, and on the same range.

* * *

[For the American Bee Journal.]

Closed or open top Frames.

Though the writer of the article of page 234, June number of the BEE JOURNAL, may be well "informed in regard to the first principles of practical bee-culture," yet it is very evident, from the slashing manner in which he goes into the comb of every closed top frame he handles, that he has never used the American or any other good hive with fixed frames. I believe that if he will try the American or Champion hive one season, he will alter his opinion and the "objectionable features" that exist only in the imagination, will vanish. I have used the American two seasons, and as far as my experience goes, there is much less irregularity of comb in it than in the Langstroth frames.

The main argument of Mr. See and others against fixed frames is based on the idea that, in order to get out the last frame it is necessary to remove every other frame from the hive. By removing two frames and inserting the blade of a knife between any two of the frames, one or more may be moved sideways, without injuring the comb or the bees, and the desired frame can then be taken out, and the evils of his supposable cases disappear. And if he will use the hives, as a sensible man ought to do, he will find that instead of being able to manage only twelve colonies in the same time that he could manage forty in the Langstroth hives, he will be able to manage about thirty-nine colonies and a half in the same time, and not kill a bee except through carelessness.

J. H. SMITH.

FREMONT CENTRE, ILLS.

[For the American Bee Journal.

The Bee Plants.

In early spring I sent to Mr. Hubbard, of New Hampshire, and obtained a paper of the seeds of the *Polanisia purpurea*, and to Mr. Terry, of Crescent City, for a paper of the seeds of the American bee plant, (called by some *Cleome integrifolia*), and I found, to all appearance, that the seeds of the two lots were alike. And now that they are grown, I find the plants and bloom are alike in every respect. I conclude therefore that they are the same, and would notify the readers of the JOURNAL of the fact, so that they need send to one place only for seed, thus saving themselves the disappointment it would occasion from not having *two new* bee plants.

I bought of R. K. Bliss & Co. a paper of seeds to sow in my flower garden, two years ago, called the *Cyanus*, and I find it will keep blooming for two or three months. If sowed in May, it will come into bloom about the middle of July, and continue until in September. It is a great favorite with the bees. They work busily on it from morning till night. It is an annual, of easy cultivation, and may be so arranged as to bloom when most needed for bee pasturage. It is a profuse bloomer. The seed must, of course, be sown annually.

I bought another paper of seeds of the same firm, called the *Chelone barbata*, a Mexican plant. Being a perennial, it does not bloom the season it is sown, but blooms profusely the second. The bees work constantly in these flowers, having to crawl into them to obtain the honey, which appears to be in large amounts. The flowers are Pentstemon-like, and showy. The plant grows about four feet high, does not bloom quite as long as the Cyanus, and is in blossom during the white clover season. It is quite ornamental for the flower garden.

J. DAVIS.

CHARLESTON, ILLS.

[For the American Bee Journal]

Swarming.

I believe it is the generally received opinion that a hive must have a queen cell started, with larva therein, previous to swarming; and that a prime swarm will not come out until one cell is sealed. (See Quinby, and others).

I have lately had hives swarm when an after examination revealed the fact that there were but the rudiments of cells, such as are found in most hives at any time during the swarming season: and I could not discover larvæ in any of them.

Now is this an unusual case, or have others met with such exceptions to the general rule?

LUCIUS C. FRANCIS.

SPRINGFIELD, ILL.

A mixture of laurel oil, oil of turpentine, and clarified honey, is used in some parts of France for the cure of frost-bitten limbs.

[For the American Bee Journal.]

Young Queen issuing with First Swarm.

As I clip the wings of all my young queens, I was much surprised, on returning home one evening this spring, to find that a hybrid stock had cast a strong swarm, which had clustered and had been hived without any trouble, evidently having a queen that could fly perfectly.

The swarm had been put in a swarming box, and on shaking them out into a hive, I found a black virgin queen, very small and active. I then opened the parent hive, and found a queen cell with the cap cut entirely off, showing that the queen had left it some hours before; and on the same comb I saw the old Italian queen, with her wings clipped.

I have never before heard of an instance of a first swarm leaving with a young queen; and suppose the old queen must have attempted to go, and finding, after the bees were on the wing, that she was unable to fly, returned to the hive; the young queen having in the meantime hatched out, left with the swarm.

D. M. WORTHINGTON.

ELKRIDGE, Mo., July 29, 1868.

[For the American Bee Journal.]

Last week I opened a nucleus in which I had put two Italian queen cells so closely joined as not to be safely separated. I found the queens both hatched, and on the same card; and while one was trying to hide herself, she attempted to crawl under the other. And, further, while one was finely marked, the other was as black as the blackest. The swarm that the brood was taken from is as handsome a swarm of Italians as there probably is in this State.

L. C. FAIRBANKS.

APPLETON, WIS.

[For the American Bee Journal.]

Honey Substitute Wanted.

I would like to inquire through the JOURNAL what is the best substitute for honey to feed bees, to carry them through the winter; because if we do not have more rain soon the bees will not get honey enough to winter; they have not gathered as much honey as they consumed, only from the 20th of June to about the 5th of July.

Although the white clover was in full bloom from the 1st of June, the bees did not work much on it before the 20th; and the weather is so dry now that buckwheat does not yield any honey. But the sweet or Melilot clover has yielded honey through all the dry weather. Unfortunately, I have only about a rod square of it; but on that the bees work from early morn until late in the evening.

R R. MURPHY.

FULTON, ILLS.

The worker bees would all rather die of starvation, than let their queen suffer want.

[For the American Bee Journal.]

Another Battle of Bees.

THE CAUSE IN ONE INSTANCE, AND THE REMEDY USED FOR THE SAME.

On my arrival home in a time of drouth, and scarcity of forage for bees, I found the doors of the dwelling house closed, and no travelling of man or beast near the apiary. Fifty hives out of three hundred were having a battle, with more hives joining in every minute, of those nearest the scene of action, though setting four feet apart, four inches high.

The cause of the war was, a swarm had starved out and deserted its hive, and attempted to enter another. The odor of the poison from the stinging assailants and the assailed, could be smelled by other hives standing near. The bees of these pitched in for war, and were fast getting the whole apiary maddened, when I arrived at the scene of action. It took but a few moments to put on a bee-hat and gloves, which are seldom needed except in extreme cases like this. Then using smoke of rotten wood for all the hives at war, I again discarded hat and gloves and inserted the different mints, burnt coffee, onions, whiskey, tobacco, burnt rags, or anything that would change the scent of the hives of robbers. If by any mishap any bees are crushed, or they leave any poison on the hive or on the person or clothes, blow some smoke over the places, as it will disguise the smell of the sting. In case of an attack on man or beast, use smoke, the stronger the better—such as that of burning tar, feathers, rags, or tobacco. For the stings, use strong spirituous liquor, internally and externally. Ammonia is good as a wash. Water is the base of the solvents, and is therefore good.

J. M. MARVIN.

ST. CHARLES, ILLS.

[For the American Bee Journal.]

The Harrison Bee-Feeder.

On the 25th of of July, I received from Mr. Edward Harrison, a sample of his bee-feeders, with the request to test them with mine. After testing and taking all things into consideration, I cannot say which is the best.

As a feeder for a starving colony, I do not believe one better than the other.

But as a feeder to stimulate a colony in the spring or summer—one having plenty of stores in the main hive—his may posssibly be the best.

As a combined feeder and waterer, the one described by me, in the July number of the AMERICAN BEE JOURNAL, I prefer.

In every case those having bees, and wishing to feed or stimulate, will find the Harrison Bee-Feeder a good one, and as a feeder all that can be desired. Which is really the best, I leave to others and time to decide.

JOHN M. PRICE.

BUFFALO GROVE, IOWA.

[For the American Bee Journal.]

Cheap Bee-Feeder.

Let me tell the readers of the BEE JOURNAL what kind of bee-feeder I use, and how made.

Take a common gill glass, or a half-pint tumbler, fill it with honey or sugar syrup, draw over it a piece of coarse muslin, and secure it by a small india rubber band. Then open one of the holes in the honey-board, and invert the glass or tumbler over it. The bees will suck out its contents at their leisure. Being air-tight the honey or syrup will not pass down faster than the bees require. When used on a nucleus hive, invert a tin cup or small earthen pot over it, to keep away flies, wasps, and bees.

A larger tumbler may be used when we wish to give the bees a larger supply of food, to serve in case of absence.

Such a feeder costs only a trifle, and is within the reach of all.

J. GODEN.

BELLE PLAIN, VA.

[For the American Bee Journal.]

Bee-Feeders.

A good bee-feeder can be made of any bottle, of any size from two ounces to two pounds.

But one having a short wide neck and a short dumpy body, with a square or nearly square shoulder is the best. To use, fill up full with honey, sugar syrup, or water; tie a piece of fine cotton cloth over the mouth, and place the neck of the bottle in a hole over the cluster of bees.

But one that I prefer is made of a glass self-sealing fruit jar—of the Hero, or any other self-sealing screw-top pattern. In the centre of the top punch fifteen to twenty holes. Over the holes solder a piece of fine perforated tin, such as is used in strainers. Around the edge of the top, outside, have a rim of tin half an inch wide soldered, to keep the feeder from touching the honey-board. To use, fill up with honey, sugar syrup, or water; screw on the top, and place it over a hole in the honey-board over the cluster of bees.

Liquid honey or sweetened water, to stimulate bees in the spring or summer, can be given diluted, without any danger of its turning into vinegar in the hottest weather; and a month or two's supply of water can be given at once. It being air-tight, the water will always be good; and those who water their bees in the winter, will find this a useful contrivance.

Bees short of supplies in winter feed from the above as quietly, and with no more excitement, than if the supply came in the natural way.

JOHN M. PRICE.

BUFFALO GROVE, IOWA.

A large number of straw hives is annually made in France, and exported to Poland and Southern Russia, where there seems to be a regular demand for them.

[For the American Bee Journal.]

A Convenient Hive.

FELLOW BEE-KEEPERS:—I have been taking notice of your welcome and instructive expatiations in the JOURNAL, and though I think I am benefitted and also try to experiment and make discoveries at home, I am at the same time aware that I have yet much to learn. Still I am always pleased to find others speak their sentiments fully through the JOURNAL.

As I promised in my last to describe a convenient hive, I will now give a brief description of one. Then each may make one for himself, and judge of its merits on actual trial. I, of course, would say it is the best in use, but forbear assuming that ground at this time.

I make a right-angled triangular box, with the entrance at the right-angled or square corner. The movable side, or honey board, is the long side, from which the frames are taken out. The interior is so constructed that the hive can be placed with either of the long corners up in winter, and of course have the main quantity of honey above them. In summer, or when honey boxes are used, it can be turned with the entrance straight down. Then the honey-board will be in a horizontal position, or level. But while comb building is going on, it must have one corner up; then the bees will always build straight in the frame. At least out of thirty-two cases which I have examined, I have not found one instance in which the combs were not straight, so that every one could be taken out separately, without any cutting or binding. Perhaps the reason of their building straight is because the space between the base of the frames is narrow at the upper angle.

Now as this hive can be made for half the money that most others can be made for, I only ask each to make one for himself, and then judge of its merits. If you cannot make them from this description, send for the specifications accompanied by drawings, and when you have experimented with the hive, report through the BEE JOURNAL.

S. B. REPLOGLE.

MARTINSBURG, PA.

BROOKLIN, CANADA WEST.

We are having the best honey season we have ever known in Canada. Swarms issued as early as the 23d of May, which is two or three weeks earlier than usual. Interest in bee-keeping is steadily increasing—the result of more extended knowledge of bee-culture.

J. H. THOMAS.

MILLROY, MIFFLIN CO., PA.

The bees are doing well here this summer, white clover being very abundant. Perhaps I may give you some results after awhile.

J. W. WHITE.

POCAHONTAS, M.

Bees were very forward here this spring They commenced swarming in April.

It has been about an average year for honey.

J. C. WALLACE.

THE AMERICAN BEE JOURNAL.

WASHINGTON, SEPTEMBER, 1868.

☞ The American Bee Journal is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

☞ In our last number we could give only a mere sketch of Krüger's method of securing pure fertilization of queens. Having since received a detailed statement of his process, as employed by himself, we present a translation of it in the present number. It is substantially the same as that of Mr. Köhler.

☞ The method of providing a supply of reserve queens, given in the present number of the Bee Journal, from the German of Hübler, we need scarcely remind practical apiarians, can be advantageously employed in combination with the process of securing pure fertilization of queens. The business of Italianizing an apiary may thus be greatly facilitated.

While giving place, in the present number, to an article on "the Varronian Theory," we do not design to re-open discussion of that topic. When the late Professor sent us the first of his articles, he requested us to withhold comment or criticism till he "got through;" but he died before that point had seemingly been reached. We could not regard his theory, so far as developed, as at all tenable, though we expressed no opinion at the time, waiting for its full presentation. Afterwards several correspondents noticed some points; but a kind of general rejoinder seemed wanting. The article referred to supplies that pretty fully, and further remark can scarcely be called for.

A correspondent of an agricultural paper, "who has paid much attention to bees," says that "king birds live on king bees." Whether by king bees he means queens or drones, we are permitted to use the Yankee privilege of *guessing*. If the former, the poor bird must at all seasons be content with "short commons;" and if the latter, though he may "fare sumptuously every day" for several months annually, he must probably "fill his belly with the east wind" during the remainder of the year.

"An old bee-keeper" thinks the common box hive as good as the best, as it "has stood the test the longest of any." Is the farmer to regard the flail as good an implement as the threshing machine, since it can plead a course of long prescription for its use? Is the traveller to prefer the pilgrim's staff, the pedler's pack, and the Indian trail, to the railway, the iron horse, and the baggage car, because the latter are modern innovations, while the former have been in common use from time immemorial?

A subscriber requests us to send him another copy of the Bee Journal for July, as a friend has taken his copy from the office and lost it; and he does not wish to miss a number. We comply of course, as we are always ready to do in like cases, when in our power. Allow us, however, to say frankly to his friend, and to any other friend similarly careless, that, in the words of Cowper, he is—

> "Such a friend that one had need
> Be very much his friend, indeed,
> To pardon or to bear it."

Alsike Clover.—We received last month, and should have noticed in our August number, from Mr. H. M. Thomas, of Brooklin, Canada, a sample of the Alsike clover grown by him last season. The dried stalks are nearly five feet long, retain the leaves and heads well, and look and smell as if they would be excellent fodder for cattle. Judging from Mr. Thomas' remarks about the growth of young clover in his field, from seed dropped in the summer of 1867, it would seem that alsike might be safely sown with rye and timothy early in the fall.

Western bee-keepers complain of a want of pasturage this summer, and fear they will have trouble in wintering their bees. Suggestions for their benefit from persons who have experienced like trouble, would doubtless be acceptable. *Here* the spring was wet and cold, and the summer hot and dry; the locusts, the lindens, and the white clover yielded less honey than usual, and the bees are consequently not so well provided for as heretofore at this season. It is to be hoped that the usual fall pasturage will supply the deficiency.

☞ Send us the names of Bee-keepers, with their Post Office address.

☞Bee-keepers in Kentucky are reminded that the KENTUCKY BEE-KEEPERS' CONVENTION wsll meet in Cynthiana, Harrison County, Kentucky, on the *second Tuesday in October next.* Everybody interested in bee-culture are invited to attend.

North-Western Bee-Keepers' Association.

The next meeting of the North-Western Bee-Keepers' Association will be held on the Iowa State Fair Grounds at the time of the State Fair. The Fair will be held near Clinton, from September 29th to October 2d. It is thought best to have two or three sessions during the Fair, or one each day. Notices will be posted up on the grounds giving the hour of meeting, so that all bee-keepers may have a chance to be present. We should be pleased to see a large attendance of bee-keepers, and those interested in bee-culture, at the meeting. We are in hopes of being able to make the sessions both practical and interesting.

R. R. MURPHY, *President.*
M. M. BALDRIGE, *Secretary.*

Bees.

The following is worthy of preservation:

WILMINGTON, VT., Sept. 30, 1867.

MR. E. P. FRENCH. *Dear Sir:*—I thought I would drop you a line and inform you what success I have had with your patent bee hive. I think it the best hive I ever saw. I will give you an account of what I have done in four years. Three years ago I wintered seventeen swarms of bees and got eight hundred pounds of surplus honey. The two years after I cleared $250 each year. Last winter I wintered forty-six swarms, and the past summer I had about one ton of the best of honey, and thirty-three swarms increase, which gives me now seventy-nine swarms of bees. (You can figure the amount of profit yourself.). I have out-stripped everything in this region so far as I can hear.

Yours truly, CLARK HARRIS.

[The above was sent to Mr. French of Bedford, who is interested in breeding fowls and in the management of bees. Mr. F. invented a hive which we are told is of superior arrangement. He has never taken pains to sell rights, though with some improvements he is now making, it will undoubtedly meet with ready sales. Mr. F. has a thorough knowledge of the bee business, and we have reason to believe will contribute an occasional article on the subject to our columns.]

In South Northamptonshire, England, there is said to be a superstition prevalent, that "bees will not thrive in a quarrelsome family." It might be well to encourage faith in this notion, in some other districts also.

[For the American Bee Journal.]

Queens Mating Twice.

I am much pleased with the matter contained in the BEE JOURNAL, and although I do not fully agree with the entire views of some of your contributors, I still believe that the suggestions and discussion of different theories will have a tendency to bring out valuable truth in the end.

I think I can answer the query of H. Nesbitt —"Do queens mate with two drones?" I have a very handsome Italian queen, one generation from a Gray importation and one year old, which I *know* mated with a black drone only, yet the *just hatching* brood shows, some three stripes, some two stripes only, and some with no stripes, but a shade lighter than the black bee.

It may be that a queen will mate with two drones, but I think it very unlikely; and the fact stated above fully covers the point Mr. N. inquires about.

The season in this section has been very unfavorable, as it rained during nearly all the blossoming term, and the crop of clover has been light. All my Italians, however, will give a small surplus, while I shall have to feed most of my black bees.

If R. Bickford wishes to avoid the loss of his bees by dysentery, he will not use a board for darkening the entrance. I tried the experiment with two swarms the past winter, and nearly ruined them in consequence. In bright sunny days I have found it advisable to follow Mr. Langstroth's advice, and give my bees the full entrance, preferring to lose a few by being chilled, than a whole stock by confinement.

I am using the "American hive," and while I have seen many others in use, I cannot see with Mr. Gallup wherein the American is deficient; and can say in its praise that I should suppose that a hive that is "best for beginners to use," would certainly be as good as any for an expert.

J. E. POND, JR.

FOXBORO, MASS.

WASPS.—There is a common superstition prevalent in some parts of England and America, that, for "good luck," the first wasp seen in the spring should be killed. The earliest seen wasps are invariably females, and if these are destroyed the multiplification of those insects is measurably checked. Thus this superstitious notion subserves a useful end.

When wasps and hornets abound in the spring, you may expect a good honey season in the fall. The wasps and hornets will attack and puncture ripe sweet fruit, such as peaches and grapes; and the bees will have a busy time gathering up the exposed sweets, that nothing be wasted.—OVERBECK, 1765.

Bees labor well, though unequally, yet have all their stores in common.

[For the American Bee Journal.]

Purity of Italian Bees.

In consequence of my advertisement in the AMERICAN BEE JOURNAL, I have received a great many letters, desiring information relative to Dr. Blumhoff's queens. Let me answer through your estimable JOURNAL.

It is an error to think, as most apiarians do, that the imported queens and their workers are more yellow than those reared here, on the assumption that they are purer.

Either because the first imported queens came from Germany, where the yellow color is in fashion; or because all queen-breeders in this country have always selected their brightest colored queens to breed from; some of the queens and workers reared here are brighter than those imported from the best bee regions in Italy. That is a remarkable change; unfortunately, I cannot say that it is an amelioration.

Indeed, as Messrs. Bidwell Bro's. state in the *American Agriculturist* for January last, in no apiary can you find two hives whose workers are exactly alike. Can we then be proud of our improvement or amelioration, on account of the lighter color of our bees?

The workers of the Blumhoff imported queens are *all alike, in all the hives;* all have the three yellow bands, with black rings larger than ours, bordered with dense gray hairs, and above all an abdomen more tapered, a body more slender, giving them a more graceful shape and a brisker appearance than those of our would-be improved bees.

As it is above all *in the shape of the body of the workers that their superiority over the black bees resides*, we must *adhere especially to the shape of the Italian bees.*

What should we think of a man who, knowing that the Percheron French horse is gray, would claim that all gray horses are Percherons? The comparison is apt, for I have bred impure queens from mothers all of whose worker progeny showed the three yellow stripes; and, again, have reared pure queens from queens whose workers were far less light-colored those of the former.

Till the contrary is shown, I lay down the following principles:

First. The Blumhoff imported bees are purer than the bees reared here, for *all their worker progeny, in all the hives, are alike;* and no criterion is more certain than this.

Second. The shape of the body of the workers, more than their color, ought to point out the queens to breed from.

Third. The color of the queens and drones is too variable for relying on with any certainty.

The shape of the workers is not so difficult to recognize as many imagine. No one, after seeing bees from an imported queen, can mistake, or consider as pure our wide, flattened, three-striped bees.

Starting from these principles we may seek to breed Italian workers with four yellow rings, or even with the abdomen entirely yellow; but should probably produce a degeneration similar to that sometimes observed in the human race, of which albinos are a rude exemplification.

CH. DADANT.

HAMILTON, ILL., August 4, 1868.

[For the American Bee Journal.]

Color of Italian Bees.

I would like to know through the JOURNAL, why it is that the queens reared from imported Italian queens are not as light colored as are those of the third or fourth generation? Also, why the workers are not as light, though they have the three rings? And why the drones are almost as black as the common drones?

R. R. M.

[For the American Bee Journal.]

Purity of Italian Bees and Queens.

It is now commonly maintained in many quarters that the sole evidence of the purity of Italian bees is that they are as gentle as flies; that is, that they will not sting. Have not those who maintain this one-sided proposition, had occasion, this year, to change their mind? I believe that if pure Italian bees are found anywhere in the United States, it is even here in Jefferson. I believe that I have myself more than a hundred colonies unquestionably pure; and, moreover, that Mr. Adam Grimm owns many hundred colonies pure and genuine. Furthermore, I believe that the queens which Mr. Grimm himself imported from Italy are and must be pure. Nevertheless, while thus believing, we know that Italian bees do sting; aye, and at times do so more readily than the black bees. During the swarming season the weather was very hot here; and all the swarms, especially the Italians, were, for swarming bees, very much disposed to sting, so that it was frequently dangerous to undertake to hive them. Accustomed as I am to handling bees, I would not venture to hive any swarm without using a bee-cap for protection. A prime swarm issuing in my absence, from a hive in my home apiary near the dwelling house, and hived by my wife, was so excited and furious that the like had never been witnessed here; and throughout the day, persons in all the neighborhood around were stung. Next morning I transferred that same hive to a transporting hive, and carried it open to my other apiary, two miles and a half distant, without receiving a sting.

Mr. Grimm informed me that his imported bees are as ill tempered as all the rest, if not more so. At other times, indeed, I find the Italian bees so gentle that I can freely open the hives and perform the required operations without any protection whatever. Still on cold days or cool mornings, it behoves us to be careful in removing the honey-board or lifting the frames not to cause any sudden jar or noise. Nevertheless, with proper careful handling, I would at any time rather open and thoroughly exam-

ine three hives of pure Italians than one of hybrid or black bees. Hence when any one hereafter claims gentleness as evidence of purity, let him not forget to remember that very much depends on the operator himself; and that bees do not manifest the same ill temper towards all individuals who approach them, just as the poison of their stings does not affect all persons alike—otherwise our queen dealers may get into undeserved disrepute.

W. WOLFF.

JEFFERSON, WIS.

[For the American Bee Journal.]

Non-Swarming.

MR. EDITOR:—The swarming season has come (and nearly gone), and brought with it some disappointment, perhaps, in some cases. I have no fault to find. My bees have done as well as they ever did, so far as swarming is concerned. But there is one difficulty we have here, in this locality at least, in Iowa. Our bees prosper well in the spring, and seem to get plenty of pollen and honey from the willow and fruit blossoms. They raise brood rapidly; and by the last of May, good stocks are ready to swarm. So says Mrs. Tupper in the Agricultural Report; but I cannot agree with her in regard to the reason she assigns why they do not then swarm. I understand her to say that a few cold days prevents them. It is not so with my bees. They commenced to swarm the last week in May, and continued till the second week in June. Then they began to kill off their drones, and all further thought of swarming seemed to be given up. In fact my bees were starving all through June. All they seemed to get, or nearly all, was from the white clover, of which there is but little here. At the last of May, so far as I examined, the hives were very populous and the combs full of brood; and on the 8th of July, when the basswood commenced to blossom, their working force was much smaller, and the hives did not contain half the amount of brood. The swarms that I got, I had hard work to prevail on them to stay with me, and had actually to resort to feeding.

This is not so only one season; but it is the history of every season. Well, I wish some of your correspondents would tell us how we shall obviate this difficulty. Shall we feed during this interval of scarcity? Or can we plant or sow something that will begin to yield honey about the 1st of June? If so, taking ten stocks as a basis, what quantity of ground will be sufficient?

E. SHULZE.

BROWNSVILLE, IOWA.

In Tusser's "*Five Hundred Points of Husbandry*," under the month of May, are these lines:

"Take heed for thy bees that are ready to swarme;
The losse thereof now, is a crown's worth of harme."

[For the American Bee Journal.]

Honey-Emptying Machine.

As there have been many inquiries about our honey machine, we give directions for making them, as follows:

Get a tinsmith to make you a tin can two feet high and eighteen inches across, straight sides. This will hold frames from both the American and the Langstroth hives. Get a straight piece of three-quarter inch iron rod for shaft; and fix or have soldered in the centre of the bottom, inside, a piece of iron with a hole drilled partly through, for bottom bearing. For top bearing get a piece of wood two inches thick and about three inches wide in the middle, and curving out broader at each end, say to five inches, and cut so as to slip closely over the edge of the can, to steady it. Our propelling power is the crank and gearing of a malleable iron apple-pearer; but we have thought that a crank placed directly on top of the shaft would give sufficient speed, as we have to turn quite slowly, especially in warm weather. Can Mr. Langstroth tell us anything about that? Well, our machine is now all done, except the frame to hold the combs, which we make in this wise:

We cut two pieces of wire cloth a little larger both ways than our comb frames. (Of course the Langstroth frames are turned so as to stand the longest way up and down). We then took galvanized white wire clothes line, bent all around the wire cloth near the edge, and soldered it. Then soldered a wire to each corner and around the shaft, leaving space enough between the frames so that these would clear the can in revolving, and two wire braces to each frame from the lower corners to near the top of the shaft. This completed it. It is simply a square wire frame, with wire cloth on two sides and shaft in the centre.

Solder all wires and braces on the outside of the wire cloth, so as to leave a smooth level wire cloth for the combs to rest against; and arrange the braces so as not to be in the way of handling the frames rapidly.

With our lady assistant we emptied, weighed and sealed up, 285 pounds of honey, in about three-fourths of a day.

We have never yet been favored with any buckwheat honey, but should really like to try our machine on it.

We should have remarked that we pour our honey into a large jar with a strainer attached, and it is then run out by a faucet into the self-sealing pint jars, as they stand on a pair of scales; so that it is quickly and accurately weighed.

The experience of others with the comb-emptying machines, would be considered a favor by

NOVICE.

Bread and honey was the chief food of the Pythagoreans, according to the statement of Aristoxenus, who says that those who ate this for breakfast were free from disease all their lives.

[For the American Bee Journal.]

The Honey-Comb Emptying Machine.

I made trial to-day of my just finished machine for emptying honey-combs, without injuring for further use; and find that, when properly employed, it fully answers the purpose intended. I confidently expect, by means of this machine, to increase my honey crop threefold next year. It will be found most advantageous to extract the honey just when the bees begin to seal it up in the cells; though the capping can be readily removed by using a suitable thin-bladed knife. It is best also to remove the capping, at the start, from both sides of the comb. While the combs are yet full and heavy, the motion should not be very rapid; and they had better be turned at short intervals, till the honey is partially discharged, and the weight thus diminished. I have emptied, by the machine, both old combs and new, to my entire satisfation, and without breaking or damaging either.

I understand that Messrs. Langstroth & Son sell similar machines at twelve dollars each. This I consider a very moderate price, if they prove to be practically as serviceable as mine has been. Mine cost me somewhat more, but paid for its cost twice over in a single day. According to my estimate, under proper management of an apiary, the combs are intrinsically worth, to the bee-keeper, as much as the honey they contain.

W. Wolff.

Jefferson, Wis., Aug. 10, 1868.

[For the American Bee Journal.]

The Honey-Emptier.

This machine is the most useful invention that has been made for bee-keepers, since the introduction of movable frames.

I made one of large size, to hold any frames which were in my hives, and it does work like a "charm."

In addition to the praises of "Novice," I would say it is good for those sending away queens. I take frames with enough sealed honey in them, and if there is too much I slice a part, then give them a turn in the machine, and it is impossible to get bees daubed with honey, even if they go twelve hundred miles.

Bees have done well here this year, though not quite equal to last year.

J. L. Hubbard.

Walpole, N. H.

In the British annual register for 1767, page 117, there is published an account of a petrified bee hive found in the mountains of Siout, in upper Egypt. Broken open it disclosed the larvæ of the bees in the cells, hard and solid, and the bees themselves preserved like mummies. What once was honey, was also found in the cells.

When the pirate promises masses and wax, the vessel is in a bad plight.

[For the American Bee Journal.]

The Tulip Tree.

Liriodendron tulipifera.

This, one of the greatest honey-producing trees in the world, richly deserves the attention of apiculturists.

Having been in the bee business for the last three years, here, where this tree abounds, I can testify as to its merits. The richness of the honey harvest this season, while the tulip tree was in bloom, was astonishing. My bees all seemed to be in a poor condition in the early part of the season, owing to the severe drouth last fall and the unfavorable weather in the spring. However, during the period that this tree was in bloom, they replenished their stores very rapidly. Some of the colonies increased in weight one hundred and fifty pounds each, in the space of three weeks.

The season of the year at which this tree blooms adds greatly to its value as a honey-producing tree. It commences just after the fruit trees are done blossoming, and continues on to about the time the lindens come in. The blossoms, which are about the size of the garden tulip, and of a mingled green and yellow color, expand successively for three or four weeks. The honey is a golden yellow, very thick and of a rich flavor.

Owing to its rapid growth, and its blossoming at an early age, this beautiful tree would certainly be quite a valuable acquisition to the groves, lawns, and door-yards of those engaged in bee-culture where this tree does not exist.

My own experience on the grand prairies of the West give me every reason to believe that it would succeed well on those fertile plains, and would be the *right* tree, at the *right* place, and in the *right* time for the honey bee.

As an ornamental tree it is magnificent, growing straight, with pyramidal top, heavy thick foliage of large peculiarly shaped leaves; and on the end of nearly every twig the flowers or blossoms appear. In a lumber point of view, it is to us what the pine is to the North-West.

J. S. Flory.

Oak Hill, West Va.

[For the American Bee Journal.]

Moth Worms in Langstroth Hives.

If moth worms are found in frame hives, more especially in the Langstroth, it will be seen on examination that the material has shrunk since the hive was made; and that the frames touch the bottom of the hive. To get rid of the worms, tack a half-inch strip under the honey-board, and two strips for the frames to rest on. This is a sure remedy. At least I found it so, this spring.

John M. Price.

Buffalo Grove, Iowa.

He that hath a head of wax, must not walk in the sun.

[For the American Bee Journal.]

Unprepared Swarming.

One of my hybrid colonies swarmed, this year, on the 11th of May, giving a second swarm on the 22d, and a third on the 24th, of the same month. There were no swarms of native bees until near the close of June, and then but few.

I had several natural swarms this year, before any preprations had been made in the hive for such an event—not even an egg had been placed in a queen cell. In one case I opened the parent stock nineteen days after the swarm issued, to see whether the young queen had commenced laying, and the first frame I took out contained more than half a dozen queen cells, from one or two of which queens had apparently just issued, and from the others they came out within ten minutes. I found cells on other frames in the same condition. The accepted natural history of the honey bee will have to be revised, will it not?

I prize the JOURNAL very much.

W. C. CONDIT.

COLUMBIA CENTRE, OHIO.

[For the American Bee Journal.]

Impregration of Young Queens.

MR. EDITOR:—Have you, or has any reader of the JOURNAL, observed the difference in time in the impregnation of young queens from different mothers; some almost invariably running four or five weeks after they are hatched out, before you find brood in the hive, and others only three or four days? I have observed such through four generations. Is this a rule, or only an accidental coincidence? Or do bees, like other stock, transmit their good or bad points?

As artificial swarming gives complete control over the production of either queens or drones, so that you can raise either from such mothers as you wish; and if by further experiment, this is found to be the rule, and Köhler's process for securing the impregnation of queens by such drones as you select, is successful, it will be of benefit to those who desire to improve their bees—especially to those who would like to secure a rapid increase of their colonies. Will those of your correspondents who may have experimented, give their experience?

JOHN M. PRICE.

BUFFALO GROVE, IOWA.

SUBLETTE, ILL., June 29.

The season here is very poor for bees, thus far, in Lee county. They have not been able to make a living until last week. No natural swarms yet. J. VANDERVOORT.

M Eugene Thirion, of Venezuela, sent to the Pa is exposition a nest of a species of honey gathering wasp, *Vespa mellifera*. May not this insect be identical with the Mexican honey hornet?

[For the American Bee Journal.]

Management and Hives.

MR. EDITOR:—I have just read Mr. Gallup's article on bee management and ventilation, in the July number—which I like, and hope he will give us more of his experience and experiments, with details.

Although the management of bees must vary with different persons, seasons, and localities, still proper management is more than half the battle, in the prosperity of the bees and the amount of surplus honey obtained. Mr. Gallup's long experience, and the many experiments he has made are of great benefit to new beginners. Yet all may not come to the same conclusion from the same experiment; and an experiment that may be successful with one man, or in a different locality, might not be so in others.

I would suggest that he communicate his way of getting the most surplus honey from every swarm of bees wintered through in good condition, if in non-swarming, swarming, or by the most rapid increase. My experience is to increase from one to ten, and in the fall, as soon as the honey harvest is over, take up all that you do not want to winter. Last year the ten swarms averaged thirty-five pounds each. I am trying it again this summer, and the prospect now is that they will do better this year than last, and by the use of the honey-emptying machine, I think the product can be doubled next year.

I use a double hive, with two movable division boards for the inside covers of the hive to rest on, which are moved towards or from each other, according to the size of the swarm, and thus make the capacity of the hive from one to seventeen frames, one foot square.

To make my artificial swarms this spring, two old stocks furnished brood enough to make one new one every week since the first of June. I took eighty frames of brood, one foot square, from four hives in one month.

The question was asked in a back number, whether queens could be introduced by putting the queen on a frame in an empty hive, and that placed on the stand of another swarm, if the bees would receive her. I have had the chance to try it several times lately. In destroying queen cells occasionally there would be a live one in it. I have introduced four from that source, every one of which was successful, and is doing well.

The honey harvest has been very good so far; white clover being very abundant.

JOHN M. PRICE.

BUFFALO GROVE, IOWA, July 12, 1868.

The opinion that stolen bees will not thrive, but pine away and die, is said to be almost universal among the peasantry in England.

The honey bee is an excellent botanist, a first-rate mathematician, and a rigid economist.